REMARKS

Claims 1-32 are pending and under consideration.

Claims 1-3, 5, 6, 14-16, 18, 19 and 26-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Mamyshev (U.S.P. 6,141,129) in view of Taneda et al. (U.S.P. 6,233,385); and claims 7, 8, 10-13, 20, 22-25, 31 and 32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Mamyshev in view of Taneda and further in view of Doran et al. (U.S.P. 6,738,542).

The rejections are traversed.

A Letter to the Examiner is being filed concurrently with this Response requesting acceptance of drawings filed with the application on February 1, 2001

ITEM 5: ALLOWABLE SUBJECT MATTER

The Examiner objects to claims 4, 9, 17, and 21 as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all limitations of the base claims. (Action at page 6).

Applicant appreciates the indications of allowable subject matter. However, claims 4 have not been rewritten to independent form, since patentability is submitted to reside in independent base claim 1 (and intervening claim 3 and intervening claims 7 and 8) and independent base claim 14 (and intervening claim 16 and intervening claims 15 and 20) from which claims 4, 9, 17, and 21 respectively depend.

TRAVERSE

According to an aspect of the present invention, peaky fluctuation components whose wavelength are outside of the transmission bands are removed. That is, the components in which the chirp is large and which are outside of the transmission bands are removed

Mamyshev discloses (See, for example, FIGs. 5-10) optical regenerator bandpass filters having a center frequency, which is different from a center frequency of optical signal inputted into NLMs. Therefore, the center wavelength of the output optical signal outputted from Mamyshev's optical bandpass filter is different from the center wavelength of the optical signal inputted into the NLM. Mamyshev teaches (See, for example FIG. 11) that to make the center wavelength of the output optical signal of the filter equal to the center wavelength of the input optical signal, two optical signal regenerators are required. Further, Mamyshev does not teach a removal of extremely peaky fluctuation components in which the chirp is large and whose wavelength are outside of the transmission bands.

Taneda discloses (col. 3, starting at line 41) a light limiter including a parametric amplification element and a wavelength selection element. In a light limiter as taught by Taneda, a loss of the light is varied by changing an input light power, and an incidence of signal light having power excessive for optical components is prevented by controlling an output light power.

Doran discloses (col. 2, staring at line 15) a soliton or soliton-like pulse-based optical communication system comprising a length of optical fibre divided into a plurality of sections wherein the average dispersion of the length of fibre is significantly different from the dispersion of each section. Doran further teaches (col. 5, lines 60-64) that a source of solitons T and an optical waveguide consisting of successive elements A_1 , B_1-A_n, B_n having successively normal and anomalous dispersion. The elements B_1 etc. provide compensation for the dispersion in the elements A_1.

Mamyshev in view of Taneda teaches optical bandpass filters have a center frequency, which is different from a center frequency of optical signal inputted into NLMs, and a loss of light is varied by changing an input light power, and an incidence of signal light having power excessive for optical components is prevented by controlling an output light power.

Mamyshev in view of Taneda and Doran teaches optical bandpass filters have a center frequency, which is different from a center frequency of optical signal inputted into NLMs, and a loss of light is varied by changing an input light power, and an incidence of signal light having power excessive for optical components is prevented by controlling an output light power, and a soliton or soliton-like pulse-based optical communication system including a length of optical fibre divided into a plurality of sections wherein the average dispersion of the length of fibre is significantly different from the dispersion of each section.

Item 3: Rejection of Independent claims 1, 14, and 26 (and respective dependent claims 2-3 and 5-6, claims 15-16 and 18-19 and claims 27-30) under 35 U.S.C. §103(a) as unpatentable over Mamyshev in view of Taneda

In item 3, the Examiner rejects independent claims 1, 14, and 26, and respective dependent claims 2-3 and 5-6, claims 15-16 and 18-19 and claims 27-30 under 35 U.S.C. §103(a) as unpatentable over Mamyshev in view of Taneda. (Action at pages 3-5).

In contrast to the foregoing references relied upon, either alone or in combination, the present invention (as recited in each of independent claims 1, 14, and 26, using the recitation of claim 1 as an example) recite a method, a device, and a system, respectively, "inputting an optical signal into an optical waveguide structure for providing a nonlinear effect; generating chirp in said optical signal by said nonlinear effect; and supplying an output optical signal output

from said optical waveguide structure to an optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure to remove a component in which said chirp is small from said output optical signal, said transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength."

The Action concedes that Mamyshev does not teach the feature of the "optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure and transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength." (Action at page 4).

However, the Examiner contends that these features are taught by Taneda and there is motivation to modify Mamyshev to allow "generating the optical signal with higher accuracy." (Action at page 4).

Applicant submits that that the cited art, alone or in combination, does not discuss or teach features of an optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of an output optical signal output and transmission bands at longer and shorter wavelength sides longer and shorter for a predetermined wavelength distant from the center wavelength, as the Examiner contends. (Emphasis added).

For example, Taneda merely discusses (col. 3, lines 55-60) that:

> wavelength selection element 23 removes the wavelength component, except for a specified wavelength . . . and outputs the only signal light S13 having a specified wavelength of 1.

That is, the cited art does not discuss longer and shorter wavelength sides.

Further, dependent claims recite features not taught by the cited art alone or in combination. For example, claims 3 and 16, using claim 3 as an example recite "an optical bandstop filter having a center wavelength substantially coinciding with the center wavelength of the optical signal."

The Examiner contends that the combination of Mamyshev and Taneda teaches these citing Taneda FIGs. 1 and 2 and col. 3, lines 39-67 and col. 4 lines 1-67. (Action at page 4). Applicant submits, however, nothing in these lines, or anywhere else, in the cited art discusses these features.

Conclusion

Since features of the claims are not taught by the cited art alone or in combination and

prima facie obviousness is not established and the rejection should be withdrawn and claims rejects independent claims 1, 14, and 26, and respective dependent claims 2-3 and 5-6, claims 15-16 and 18-19 allowed.

Item 4: Rejection of dependent claims 7, 8, 10-13, 20, 22-25, and 31-32 under 35 U.S.C. §103(a) as unpatentable over Mamyshev in view of Taneda and Doran

In contrast to the cited art, dependent claims 7 and 20, using dependent claim 7 as an example, recite a method and a device "supplying said output optical signal to a dispersion compensator so that said output optical signal undergoes dispersion compensation."

The Action concedes that Mamyshev as modified by Taneda does not teach a dispersion compensator. Nevertheless, in item 4 the Examiner rejects dependent claims 7 and 20 under 35 U.S.C. §103(a) as unpatentable over Mamyshev in view of Taneda and Doran, and contends there is incentive to modify Mamyshev. (Action at pages 5).

Applicant submits there is no stated motivation to modify Mamyshev as the Examiner contends to include a dispersion compensator. For example, Mamyshev discusses (col. 6. lines 5-10):

> (the)present invention is operable with positive, negative, and null-valued dispersion. However, a small negative (non-soliton) dispersion (D<0) is advantageously utilized in one embodiment of the present invention, since utilizing a small negative magnitude for dispersion results in an SPM-broadened pulse spectra having a more distinctly level peak during the duration of the pulse.

In further contrast to the cited art dependent claim 8 recites "adjusting a dispersion and input power of said second optical fiber so that pulse compression is performed to such an extent that a defect near the pulse peak of an optical signal output from said second optical fiber is reduced."

In contrast to the cited art, dependent claims 10 and 22, respectively recite a method and a device, using claim 10 as an example, "performing pulse compression on said optical signal to be input into said optical waveguide structure." In contrast to the cited art dependent claims 11, 32, and 23 respectively recite methods and a device including "a first optical fiber for providing normal dispersion and a second optical fiber for providing anomalous dispersion." In contrast to the cited art dependent claims 12 and 24 respectively recite a method and a device "wherein said optical signal to be input into said optical waveguide structure comprises WDM signal light obtained by wavelength division multiplexing a plurality of optical signals." In contrast to the cited art dependent claims 13 and 25 respectively recite a method and a device "wherein said optical waveguide structure comprises an optical fiber for providing normal dispersion, said

optical fiber having a dispersion large enough to eliminate the occurrence of crosstalk between channels of said WDM signal light."

Applicants submit that these features are not taught by the cited art alone or in combination. Further, Applicant submits that there is no stated motivation in Mamyshev to combine an all-optical data regeneration method with a light limiter as taught by Taneda with an optical fiber system divided into sections as taught by Doran, as the Examiner contends. Further, the Examiner has not provided a motivation in rejecting dependent claims 8, 10-13, 22-25, and 31-32.

Conclusion

Since features of the claims are not taught by the cited art alone or in combination, and there is no stated motivation to combine the cited art, prima facie obviousness is not established, the rejection should be withdrawn and claims 7, 8, 10-13, 20, 22-25, and 31-32 allowed.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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